

## CLAIMS

The embodiments of the invention in which an exclusive property or right is claimed are defined as follows. Having thus described the invention

5 what is claimed is:

1. A transducer apparatus, comprising:

10 a metal diaphragm molecularly bonded to a ceramic material to form a ceramic surface thereof;

a bridge circuit connected to said ceramic surface of said metal diaphragm;

15 an input pressure port for pressure sensing thereof, wherein said input pressure port is connected to said metal diaphragm to thereby form a transducer apparatus comprising said metal diaphragm, said bridge circuit and said input pressure port.

20 2. The apparatus of claim 1 wherein said metal diaphragm is welded to said input pressure port.

3. The apparatus of claim 1 wherein said metal diaphragm and said ceramic surface thereof operate over a temperature of range of at least 40°  
25 C to 150° C.

4. The apparatus of claim 1 wherein said ceramic material is molecularly bonded to said metal diaphragm to form said ceramic surface thereof.

30 5. The apparatus of claim 1 wherein said ceramic surface bonded to said metal diaphragm comprises a ceramic substrate.

6. The apparatus of claim 5 wherein said ceramic substrate bonded to said metal diaphragm provides corrosion protection to said metal diaphragm.
7. The apparatus of claim 1 wherein said bridge circuit comprises a resistor network.
8. The apparatus of claim 1 wherein an electrical circuit is formed from a flex circuit board comprising an ASIC and associated circuitry thereof.
9. The apparatus of claim 8 further comprising EMI circuitry which forms part of said flex circuit
10. A transducer apparatus, comprising:
- a metal diaphragm molecularly bonded to a ceramic substrate, wherein said metal diaphragm and said ceramic substrate operate over a temperature of range of at least 40° C to 150° C.
- a bridge circuit bonded to said ceramic substrate of said metal diaphragm to provide corrosion protection to said metal diaphragm;
- EMI circuitry configured on said flex circuit;
- an input pressure port for pressure sensing thereof, wherein said input pressure port is welded to said metal diaphragm to thereby form a transducer apparatus comprising said metal diaphragm, said ceramic substrate said bridge circuit and said input pressure port.
11. A method for forming a transducer, comprising the steps of:
- molecularly bonding a metal diaphragm to a ceramic material to form a ceramic surface thereof;

connecting a bridge circuit to said ceramic surface of said metal diaphragm; and

5        providing an input pressure port for pressure sensing thereof, wherein said input pressure port is connected to said metal diaphragm to thereby form a transducer apparatus comprising said metal diaphragm, said bridge circuit and said input pressure port.

10    12.    The method of claim 11 wherein the step of connecting a bridge circuit to said ceramic surface of said metal diaphragm, further comprises the step of:

welding said metal diaphragm to said input pressure port.

15    13.    The method of claim 11 wherein said metal diaphragm and said ceramic surface thereof operate over a temperature of range of at least 40° C to 150° C.

14.    The method of claim 11 wherein the step of connecting a bridge circuit  
20    to said ceramic surface of said metal diaphragm, further comprises the step of:

molecularly bonding said ceramic material to said metal diaphragm to form said ceramic surface thereof.

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15.    The method of claim 11 wherein said ceramic surface bonded to said metal diaphragm comprises a ceramic substrate.

16.    The method of claim 15 wherein said ceramic substrate bonded to  
30    said metal diaphragm provides corrosion protection to said metal diaphragm.

17.    The method of claim 11 wherein said flex circuit comprises an ASIC

(Application Specific Integrated Circuit).

18. The method of claim 17 further comprising the step of forming said ASIC from a flex circuit

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19. The method of claim 18 further comprising the steps:

providing a Z-axis conductor; and

10 forming a conductor path from said bridge circuit, through said z-axis conductor into said flex circuit.

20. The method of claim 11 further comprising the step of providing a housing in which said transducer apparatus, including said bridge circuit,  
15 said metal diaphragm, said ceramic surface and said input pressure port are located.